

the barometric gradient very steep. Sometimes between the lowest and the highest readings there is a range in pressure of upward of 1 inch in about 1,000 miles, which causes very heavy westerly gales over the country covered by the low pressure, especially near the area of lowest barometric readings. With a disturbance of this description, light to heavy general rains are experienced over South Australia, Victoria, and the southern half of New South Wales.

Figure 8, shows a remarkable distribution of pressure in New South Wales, with a central barometric value of 29.3 inches, and its surrounding isobars very closely arranged; thus causing very steep gradients and, consequently, violent winds round the vortex of the disturbance. The circulation of the wind is clockwise, the directions being west on the northern, north on the eastern, east on the southern, and southerly on its western limits. This is popularly known as a "cyclone", and the violence of the winds is perilous to shipping, especially the easterly element, which, as the storm is leaving a coast line, as shown on the chart, causes very rough and dangerous seas. Some very heavy rains occur over the area occupied by the cyclone, at times causing floods in low lying lands. These cyclonic storms are very seldom experienced in Australia. On rare occasions, however, they are formed at the southern extremity of a monsoonal tongue, and now and then a roving "cyclone" may work southward from the Tropics, to Rockhampton or Brisbane. In the latter case their appearance would be almost unheralded, until the strong southerly and easterly gales of the western side are in full swing.

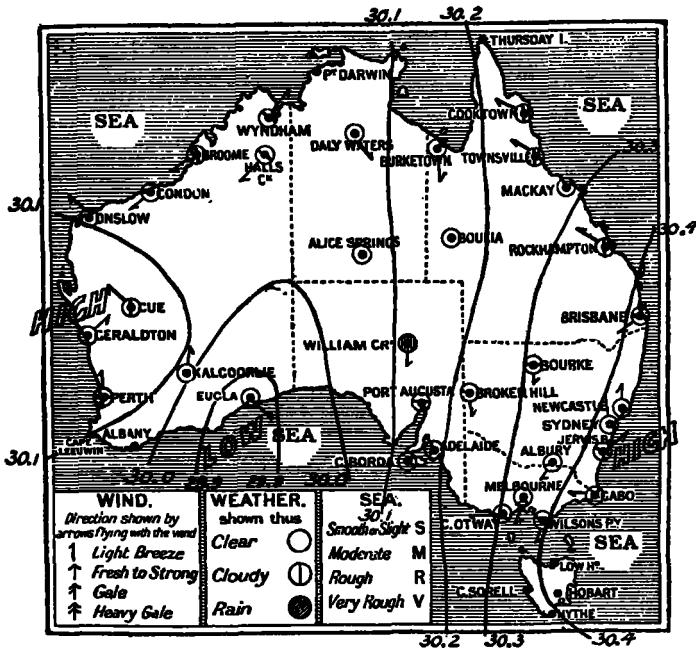


Fig. 9.—Vertical or straight line isobars. These isobars over the eastern states, closely followed by a A-shaped depression, sometimes result in good general rains over the southeastern states within forty-eight hours.

Figure 9, presents a class of pressure distribution which is not often met with, but when it exists, as here shown, sometimes results in good general rains within forty-eight hours over the southeastern states. The north-south isobars are the rear of a departing high pressure, and the wind circulation is responsible for the inflow to the heart of the continent, of tropical moisture which, upon being met by the cool southerly wind of the A-shaped depression, is precipitated as rainfall. These resulting rains occur first in the northwest of our state, thence extend eastward and finally westward.

NOTES FROM THE WEATHER BUREAU LIBRARY.

By C. FITZHUGH TALMAN, Librarian.

INAUGURATION OF THE LAKE CONSTANCE KITE STATION.

Altho regular observations were begun at the Lake Constance kite station on April 1, 1908 (see MONTHLY WEATHER REVIEW, February, 1908, p. 21, and April, 1908, p. 110), the formal inauguration of the building took place July 11, in the presence of the King of Württemberg, representatives of the German Empire, Baden, Bavaria and Alsace-Lorraine, the governing board of the institution, and certain members of the International Committee on Scientific Aeronautics. This event has attracted much attention to the new station, descriptions of which have lately appeared in many of the European newspapers, and popular illustrated weeklies, as well as in the scientific press.

The institution owes its origin chiefly to Professor Hergesell, of Strassburg, president of the International Committee on Scientific Aeronautics. As early as 1900 Professor Hergesell made experimental kite flights over Lake Constance, in collaboration with Count Zeppelin; and having assured himself that this lake was especially well suited for the operations of a kite boat he brought the matter to the attention of the German Imperial and State governments, and succeeded in obtaining the necessary appropriations for the establishment and maintenance of the station.

The little steamer *Gna*, from which the kites are flown, resembles a torpedo boat and has a maximum speed of 19½ knots. The kites are launched from the masthead, and are generally flown tandem. It is said that the four members of the crew are becoming quite expert in the difficult and unique task of adapting the speed and direction of their vessel to the vagaries of the wind.

DOCTOR POLIS'S SECOND VISIT TO AMERICA.

Dr. P. Polis, Director of the Meteorological Observatory of Aachen, Germany, arrived in New York on the *Kaiserin Auguste Victoria* August 15, and sailed for Germany on the same steamer August 20. Doctor Polis's trip was undertaken at the invitation of the Hamburg-American Line, in order that he might make experimental daily weather maps of the transatlantic steamship route, based on wireless reports from steamers and land stations. A report of the results of the journey will be made to the German Government.

METEOROLOGY IN BRITISH NORTH BORNEO.

We are indebted to Mr. Lester Maynard, American Consul at Sandakan, British North Borneo, for an extract from the British North Borneo Herald of July 1, 1908, regarding the meteorological work that is now carried on in that country under the supervision of the principal medical officer. It appears that the latter official has just published a small pamphlet, not intended for general circulation, containing the somewhat imperfect results of the observations made at all stations during 1906 and 1907, which is believed to be "the first attempt to collate the meteorological returns of the various stations in North Borneo."

To the following abstract of the annual rainfall is attached the query: "Is Tawao the Sahara of British North Borneo, or is it only the result of a leaky rain-gage?"

TABLE 1.—Annual rainfall in British North Borneo, 1906-7.

	1906.	1907.
	Inches.	Inches.
Sandakan.....	84.48	153.74
Kudat.....	64.16	101.70
Taratipan (near Kudat).....	99.14	104.69
Jesselton.....	94.63	101.96
Beaufort.....	158.09	(?) 62.91
British Borneo Para Rubber Co., Beaufort.....	159.03	168.64
Sapong Estate.....	64.80	57.10
Tawao.....	28.33	26.39

Taking the year 1906, December was the wettest month in Sandakan, Kudat, and Taritipan, the rainfall being respectively 29.00, 27.16, and 29.23 inches, while in Jesselton, Beaufort, and the British Borneo Para Rubber Estate (Beaufort) the most rain was registered as follows: Jesselton, August, 22.37; Beaufort, August, 27.15; Beaufort, April, 28.70 (?); British Borneo Para Rubber Estate (Beaufort), July, 23.30; British Borneo Para Rubber Estate (Beaufort), August, 21.48.

In 1907 Sandakan recorded 34.54 inches in February and 24.87 in March, December being comparatively dry with 16.96, while Kudat's rainiest month was March, with 22.51, Taritipan showing 27.14 for the same period. On the other hand, these months were amongst the driest on the west coast, Jesselton not reaching double figures till June and July with 11.45 and 12.96 inches, while the British Borneo Para Rubber Company's Estate, Beaufort (the hospital returns for that station being probably unreliable), show an average of 10 to 14 inches for every month thruout the year, with the exception of August (7.68), October (25.29), and December (19.33).

BRILLIANT SKY GLOWS.

From many parts of middle and northern Europe and the British Isles come reports of a brilliant illumination of the northern sky during the night of June 30–July 1, 1908, and less conspicuous displays of a similar character on other nights preceding and following that date. Nature (London) of July 9 reports that the whole of the northern part of the sky, from the horizon to an altitude of about 45° and extending to the west, was suffused with a reddish hue, the color varying from pink to an Indian red. Several observers state that it was possible to read fairly small print at midnight without any aid from artificial light.

Ciel et Terre (Brussels) reports that in Belgium the illumination, which extended horizontally over an arc of about 90°, did not rise to more than from 5° to 10° above the horizon, tho its reflection extended more or less over the whole sky. It was of an intense golden yellow above and a pronounced red below, presenting somewhat the aspect of the eastern sky a few moments before sunrise. The region of maximum illumination moved slowly toward the east, apparently following the movement of the sun; at midnight it was due north.

All the accounts of the illumination agree that it presented none of the characteristic features of an aurora, but was probably due to the presence of dust (or, as T. W. Backhouse, in Nature of August 20, says, "some substance") at such a height in the atmosphere that the sun shone upon and illuminated it when far below the horizon of the observer. In this connection American readers should remember that in northern Europe around the time of the summer solstice the sun is never far enough below the horizon to put an end altogether to the twilight, under average conditions of the atmosphere.

RECENT ADDITIONS TO THE WEATHER BUREAU LIBRARY.

C. FITZHUGH TALMAN, Librarian.

The following have been selected from among the titles of books recently received, as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies. Most of them can be lent for a limited time to officials and employees who make application for them. Anonymous publications are indicated by a —.

Aachen. Meteorologisches Observatorium.

Niederschlagskarte der Rheinprovinz nebst den angrenzenden Teilen von Hessen-Nassau und Westfalen. 1894–1903. Essen. n. d. 1 sheet. 123 x 191 cm.

Erläuternder Text zur Niederschlagskarte der Rheinprovinz... von P. Polls. Essen. 1908. 34 p. 4°.

Temperaturkarte der Rheinprovinz nebst den angrenzenden Teilen von Hessen-Nassau und Westfalen. Auf Grund zwanzigjähriger Beobachtungen 1881–1900. Essen. n. d. 2 sheets. 68 x 118 cm. Erläuternder Text zur Temperaturkarte der Rheinprovinz... von P. Polls. Essen. 1905. 20 p. 4°.

Australia. Commonwealth bureau of meteorology.

The climate and meteorology of Australia. Bull. no. 1... by H. A. Hunt. Melbourne. [1908.] 34 p. 8°.

Austria-Hungary. Hydrographisches Amt der K. und k. Kriegsmarine in Pola.

Jahrbuch der meteorologischen, erdmagnetischen und seismischen Beobachtungen. Neue Folge. 12. Band. Pola. 1908. xxiv, 152p. f°.

British Guiana. Botanic gardens, Georgetown.

Meteorological observations. n. t. p. HH 23 p. f°.

Curitiba (Brazil). Observatorio meteorologico de Curitiba.

Taboa de clima de Curitiba. Valores normaes extremos e totaes obtidos pelas observacoes feitas durante 23½ de annos, de maio de 1884 a dezembro de 1907... Curitiba. 1908. 1 sheet. 33 x 43 cm. Resumo das observacoes feitas durante o anno de 1907. Curitiba. 1908. 1 sheet. 32 x 41 cm.

France. Bureau central météorologique.

Annales. Année 1905. II. Observations. Paris. 1908. v. p. f°.

Same. Année 1905. III. Pluies. Paris. 1907. v. p. f°.

Great Britain. Meteorological office.

Barometric gradient and wind force. Report to the director of the Meteorological office on the calculation of wind velocity from pressure distribution and on the variation of meteorological elements with altitude. By Ernest Gold. London. 1908. 44 p. f°.

Hourly readings obtained from the self-recording instruments at four observatories... 1907. London. 1908. xvii, 197 p. f°.

Liverpool observatory.

Report of the director of the observatory to the Marine committee... Liverpool. 1908. 43 p. 8°.

Mauritius. Royal Alfred observatory.

Results of the magnetic and meteorological observations... 1906. London. 1908. xxx (lxxv) p. f°.

Montevideo. Colegio Pio de Villa Colon. Observatorio meteorologico.

Años meteorológicos 1902–3, 1903–4 y 1904–5. Montevideo. 1907. 16 p. f°.

Netherlands. Koninklijk nederlandsch meteorologisch institut.

Observations océanographiques et météorologiques dans l'océan Indien. Septembre, octobre, novembre (1856–1904). Utrecht. 1908. xiii, 190 p. f°.

Prussia. Landesanstalt für Gewässerkunde.

Jahrbuch für die Gewässerkunde Norddeutschlands. Besondere Mitteilungen. Band 1 (Heft 2). Berlin. 1907. vi, 101 (25) p. f°.

Same. Band 2 (Heft 1). Berlin. 1907. 96 p. f°.

U. S. Philippine commission.

Report. 1907. 3 parts. Washington. 1908. 8°.

RECENT PAPERS BEARING ON METEOROLOGY AND SEISMOLOGY.

C. FITZHUGH TALMAN, Librarian.

The subjoined titles have been selected from the contents of the periodicals and serials recently received in the Library of the Weather Bureau. The titles selected are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled; it shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau. Unsigned articles are indicated by a —.

American journal of science. New Haven. 4th ser. v. 26. August, 1908.

Ashman, George C. A quantitative determination of the radium emanation in the atmosphere. p. 119–122.

Scientific American. New York. v. 99. 1908.

— The work of a Nebraska cyclone. p. 78. (August 1.)

Cummings, Edith E. A young girl's theory of thunderstorms. p. 123. (August 22.)

Sierra club bulletin. San Francisco. v. 6. June, 1908.

LeConte, Joseph N. Snowfall in the Sierra Nevadas. p. 310–314.

Telegraph age. New York. v. 25. August 1, 1908.

Wiley, Day Allen. Electricity in the United States Weather Bureau. p. 513–515.

Geographical journal. London. v. 32. July, 1908.

Mill, Hugh Robert. The geographical distribution of rainfall in the British Isles. p. 59–65.

E., J. W. South American rainfall. p. 76–77. [Review of work by Voss.]

Nature. London. v. 78. July 30, 1908.

Chree, C. The isothermal layer of the atmosphere. p. 293.

Symons's meteorological magazine. London. vol. 43. July, 1908.

Bates, D. C. Report upon dry period and rain-making experiments at Oamaru, New Zealand. p. 107–111.